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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,539

03/27/2006

Henryk Frenzel

2003P12502

7154

24131 7590 04/16/2008  
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EXAMINER

CHIEM, DINH D

ART UNIT

PAPER NUMBER

2883

MAIL DATE

DELIVERY MODE

04/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/573,539	<b>Applicant(s)</b> FRENZEL, HENRYK	
	<b>Examiner</b> ERIN D. CHIEM	<b>Art Unit</b> 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 14-21 and 23-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-21, 23-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 22-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al. (US 2001/0050717 A1).

Regarding claim 14, Yamada discloses an optical module comprising: a circuit carrier (5), a non-packaged semiconductor device flip-chip mounted (Para [0042]) on said circuit carrier, a lens unit (2) disposed for projecting electromagnetic radiation onto said semiconductor device, said lens unit including a lens holder and a lens assembly with at least one lens (3), and said circuit carrier having at least one relatively thin region and a relatively thick region supporting said thin region ('21', '5'). The thin region and the thick region are implemented as a molded interconnect device with integrated conductor tracks (printed circuit board), wherein the thin region is a flexible circuit board and the thick region is a rigid printed circuit board (Para [0041]-[0044]). The structures of the thin and thick region are present in the prior art. The limitations of a molded interconnect has been identified as a Product-by-Process limitation. The thick and thin regions are connected at junction [29]. How these regions are formed does not bare patentable weight because this is a device claim.

Regarding claims 24-29, examiner considers the screws formed in the layer labeled '21' of Fig. 3 to be support elements such that the support elements at least partially formed on said lens holder which is mounted on the circuit carrier, thus the circuit carrier forms a part of said lens unit..

Regarding claim 30, wherein the semiconductor device is disposed on a side of said circuit carrier facing *away* from said lens unit and the thin region of the circuit carrier is formed with an opening enabling through projection of electromagnetic radiation from said lens assembly onto said semiconductor device (See figs.9, 11, 12-15, and 18 for example).

Regarding claim 31, wherein the optical system comprising at least one optical module according to claim 14, see Fig. 20.

Claims 14, 16-19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoshino et al. (EP-1081944 A2).

Referring to Fig. 3B and Fig. 4, Hoshino discloses an optical module comprising a circuit carrier (10), a non packaged semiconductor device flip-chip (11 and Para [0042]) wherein the semiconductor is disposed in said thin region of said circuit carrier. The thick region is at least frame-shaped (Fig. 4). The thick region (13) is a rigid portion of said circuit board comprises a portion of a multilayer printed circuit board.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2883

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Nakajoh (US 2003/0025825 A1).

Yamada discloses the invention of claim 1, however Yamada does not disclose the lens holder is supported in said thin region of said circuit carrier. Nakajoh discloses an optical module comprising a circuit carrier (11) a non packaged semiconductor device flip-chip mounted on said circuit carrier (272), a lens (15) unit disposed for projecting electromagnetic radiation onto said semiconductor device, said lens unit including a lens holder (13) and the lens holder is supported in said thin region of said circuit carrier. It would have been obvious to one having ordinary skill in art to recognize the art of Yamada would be modifiable by the disclosure of Nakajoh prior art and a motivation for one in the art to modify is to reduce the assembly cost.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Kothmeier (US 2003/0193609 A1). Yamada does not explicitly disclose the circuit carrier thick region is a rigid portion of an FR4 circuit board. Kothmeier discloses an optical carrier and housing arrangement for receiving a color splitter system and several image converters utilizes an optical carrier comprising of a FR4 (flame resistance 4) circuit board. The motivation for utilizing FR4 circuit board is a convention in the art of electronics as disclosed by Kothmeier (Para [0016]).

***Response to Arguments***

Applicant's arguments filed 12/27/2007 have been fully considered but they are not persuasive. The limitations of a molded interconnect has been identified as a Product-by-Process limitation. The thick and thin regions are connected at junction [29]. How these regions are formed does not bare patentable weight because this is a device claim. Regarding claims 1, applicant is claiming the product including the process of how the two regions are formed through molding methods, and therefor are of "product-by-process" nature. The courts have been holding for quite some time that: the determination of the patentability of product-by-process claim is based on the product itself rather than on the process by which the product is made. In re Thrope, 777 F. 2d 695, 227 USPQ 964 (Fed. Cir. 1985); and patentability of claim to a product does not rest merely on a difference in the method by which that product is made. Rather, it is the product itself which must be new and unobvious. Applicant has chosen to claim the invention in the product form. Thus a prior art product which possesses the claimed product characteristics can anticipate or render obvious the claim subject matter regardless of the manner in which it is fabricated. A rejection based on 35 U.S.C. section 102 or alternatively on 35 U.S.C. section 103 of the status is eminently fair and acceptable. In re Brown and Saffer, 173 USPQ 685 and 688; In re Pilkington, 162 USPQ 147. Hence the rejections are maintained.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN D. CHIEM whose telephone number is (571)272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erin D Chiem/  
Art Unit 2883

/Frank G Font/  
Supervisory Patent Examiner, Art Unit 2883

April 14, 2008  
FGF/edc